




UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
RESEARCH TRIANGLE PARK, NC 27711

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OFFICE OF
AIR QUALITY PLANNING
AND STANDARDS

SUBJECT: Cancer Incidence Rates Resulting from Inhalation of Benzene Emissions
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Using the 1999 National Air Toxic Assessment (NATA), I approximated the incidence of cancer resulting from inhalation of benzene from outdoor sources. The 1999 NATA utilizes a detailed national emissions inventory, a dispersion model, exposure model, and health criteria data to predict census tract level risk estimates for 177 air toxics. EPA developed this assessment tool to inform both national and more localized efforts to collect information and characterize/reduce air toxics emissions (e.g., prioritize pollutants/geographic areas of interest for monitoring and community assessments). EPA suggests that the results of this assessment be used cautiously, as the overall quality and uncertainties of the assessment will vary from location to location as well as from pollutant to pollutant. Further details on the assessment and its limitations can be found at the NATA website (<http://www.epa.gov/ttn/atw/nata1999/index.html>)

Using the NATA results we can calculate the national incidence levels by multiplying the predicted cancer risk at each census tract by the population of this tract and summing for the entire country. As these are lifetime risks, the annualized values are determined by dividing lifetime risks by 70/years. NATA predicts approximately 42 annual cancer cases resulting from inhalation of benzene emitted from all outdoor sources. The NATA results alone cannot predict the actual source or source category contributing to these cases. By examining the inventory that was used to generate the NATA results we can make an approximation as to the source category contribution to these cases. Gasoline Distribution (Stage I) emissions (i.e., all gasoline distribution facilities but excluding the emissions from refueling of motor vehicles) comprise approximately 1% of the total benzene emissions. If we assume that risks (and thus cancer cases) are proportional to the emissions we could expect approximately 0.4 cases/yr (1% of 42 cases) resulting from benzene emissions from the Gasoline Distribution (Stage I) source category.

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